DAM, DIVERSION (No.)

CODE 348

MONTANA TECHNICAL GUIDE SECTION IV

DEFINITION

A structure built to divert part or all the water from a waterway or a stream into a different watercourse, an irrigation canal or ditch, or a water-spreading system.

PURPOSES

(1) To divert part or all the water from a waterway in such a manner that it can be controlled and used beneficially, or (2) to divert periodic damaging flows from one watercourse to another watercourse having characteristics that reduce the damage potential of the flows.

CONDITIONS WHERE PRACTICE APPLIES

Where a diversion dam is needed as an integral part of an irrigation system or a water-spreading system designed to facilitate the conservation use of soil and water resources.

Where it is desirable to divert water from an unstable watercourse to a stable watercourse.

Where the water supply available is adequate for the purpose for which it is to be diverted.

Where the impact of a proposed dam on water quality, fish and wildlife habitat, forest, and visual resources are evaluated and the techniques and measures necessary to overcome the undesirable effects are made part of the work.

CRITERIA

Limits for design parameters

Outlet Works If part of the flow is to be diverted, the outlet works must provide for positive control of both maximum and minimum diversions consistent with the purpose for which the diversion is made. If all the flow is to be diverted, the outlet works must provide for safe diversion of all expected flows, depending on site conditions.

A headgate or control structure shall be installed to control diverted flow into a canal, ditch, or watercourse where control is needed to regulate the flow rate or prevent long duration flow.

Bypass Works The bypass works must be capable of passing all flows needed to satisfy downstream priorities and all flows in excess of diversion requirements, including expected flood flows. This may require a combination of orifices, weirs, and gates designed to meet the requirements of the site.

The structure and associated site shall pass all flows in a safe and stable manner up through the 50 year peak flow. Provisions shall be made for safe reentry of bypassed flows as necessary.

Special Purpose Works If debris, bedload materials, or sediments are present under flow conditions subject to diversion, provision shall be made to bypass or remove materials that may be detrimental to the functioning of the outlet works, to other parts of the works, or to areas to which diversion is made. This may require the use of settling basins, debris traps, trash guards, or sluiceways, depending on site conditions.

CONSIDERATIONS

All federal, state, and local laws, rules, and regulations governing construction activities within

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streams or concerning water use shall be followed. When the structure is installed in a designated floodway or floodplain its impact on the 100-year flood must be analyzed. The owner or his agent shall be responsible for securing all necessary permits and for performing all work in accordance with such laws and regulations.

PLANS AND SPECIFICATIONS

Plans and specifications for installing diversion dams shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

An operation and maintenance plan shall be prepared for use by the owner or others responsible for operating and maintaining the system. The plan shall provide specific instructions for operating and maintaining the system to insure that it functions properly. It shall also provide for periodic inspections and prompt repair or replacement of damaged components or incidence of erosion.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.